

## **Modeling Atrazine Occurrence Patterns with Nonparametric Neural Networks**

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OW's Atrazine Team wants to understand how well the Atrazine Rule performs with respect to short-term peaks in exposure, which some research indicates may be an important human health consideration. To understand the performance of the Atrazine Rule, the Team needed to assess the likelihood of compliance and noncompliance, given various occurrence levels and patterns. This poster describes how new occurrence data (provided through the Office of Pesticides Program's re-registration of the pesticide) were used to characterize a range of occurrence patterns.

Re-registration data sets having low, moderate, and high variability were identified, and their occurrence patterns were modeled using nonparametric neural network methods. Although nonparametric in the statistical sense, the models contained numerous parameters, including one to describe serial correlation. One location's pattern required 15 parameters! Maximum likelihood parameter values were identified using greedy search algorithms.

The resulting occurrence patterns can be scaled to represent low, moderate, and high variability waters with various occurrence levels.